

E. a parallel to serial converter, which generates the transmit data out (serial), wherein the subcarriers allocation controller allocates subcarriers using a Reed-Solomon (R-S) codes scheme, and wherein the subcarriers allocation controller allocates subcarriers using a shifted version of a Reed-Solomon (R-S) code that are separated by more than one step difference.

17. The system for allocating subcarriers to subscribers according to claim 16, wherein the system is a cellular communication system.

18. The system for allocating subcarriers to subscribers according to claim 16, wherein the system is a xDSL communication system.

19. The system for allocating subcarriers to subscribers according to claim 16, wherein a group of 22 carriers is allocated to one user, another user will be allocated a cycled version of the group.

20. In a multicarrier system, a method for allocating subcarriers to subscribers, comprising the steps of:

A. keep a table of R-S codes for frequency group allocation to base stations;

B. assign one set of subcarriers based on R-S codes to a base station;

C. assign other sets of subcarriers based on R-S codes to other base stations in such a way that adjacent base stations have different R-S codes, to minimize the number of collision points therebetween, further including the steps of:

D. where a base station has sectorized coverage, a plurality of codes are assigned to that station for use with the various sectors;

E. base station keeps a table of available codes, wherein part of the codes are tagged "free" whereas the others are "in use" ;

F. when a new subscriber gains access through a base station, the subscriber is assigned one or more of the codes for that cell;

G. when a subscriber leaves the cell, his R-S code is tagged as "free";

H. a new subscriber is assigned a shifted version of the code;

I. different codes are allocated in various sectors, and taking into account the code of the nearby cell.